

One-day training: “Theoretical and practical aspects of volcanic, hydrothermal and tectonic gases using gas geochemistry”

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Gas geochemistry offers a unique perspective on the processes that operate with the earth’s crust and mantle. The chemical composition of gases that are emitted through volcanoes, hot springs, faults and diffusely offer the opportunity to apply approaches rooted in thermodynamics to extract information about deep temperature conditions, volcanic and hydrothermal activity and the location of faults. Utilizing noble gas and stable isotopes of gas samples allows the researchers to identify the ultimate sources of gases such as CO₂, CH₄, N₂ and He. This information is useful for deciphering mantle versus crustal inputs of volatiles to the emitted gases and evaluate how deep and shallow processes affect manifestations observed at the surface. In addition to gas composition, the emission rate of volatiles such as CO₂ provides information on volcanic activity.

This training will cover a broad overview of the theoretical and practical aspects of volcanic, hydrothermal and tectonic gases. It will include applications of data as well as information on analytical and field procedures.



Gas coming from the main crater of Holubraun. Photo taken on 21 January 2015 by Oddur Sigurðsson.